

# Gad Gad

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## Education

- 2023 – Present **PhD, Computer Science, Western University, ON, Canada**  
Research and Teaching Assistant
- 2021 – 2023 **MSc, Computer Science, Lakehead University, ON, Canada**  
Research and Teaching Assistant
- 2015 – 2021 **BSc, Computer Engineering, Nile University, Egypt**  
Merit-based full scholarship for academic performance.

## Skills

- Languages **Python, C++, SQL**
- Tools & Libraries **Keras, Pytorch, sklearn, ROS, CUDA, Flask, SQLite, Docker**
- Cloud Services **AWS Machine Learning Speciality.**

## Experience



- Nov. 2023-Present **Volunteer worker, VON.** (London, Canada)  
Supporting clients and their caregivers. Performing and recording blood pressure measurements for clients. Registering new VON clients.
- Sept. 23 - Present **Teaching and Research Assistant, Western University.** (London, Canada)  
Conducting research in the following areas: mmWave wireless communications, federated learning, and differential privacy.
- Sept. 21 - Apr 23 **Teaching and Research Assistant, Lakehead University.** (Thunder Bay, Canada)  
Conducting research in the following areas: federated learning, knowledge distillation, and differential privacy.
- Apr. 21 - Aug. 21 **Software Engineer, Delta-care.** (Giza, Egypt)  
Developed the backend of an automatic microscope. Developed deep learning detection, tracking, and segmentation to automate human semen assessment.
- Sept. 20 - Jul. 21 **Software Intern, Vortex.** (Alexandria, Egypt)  
Software development for Vortex RoboSub 2021 competition Autonomous Underwater Vehicle (AUV) team. Designed and implemented collaborative ROS nodes for smart underwater detection and motion planning.
- Nov. 20 - May 21 **Machine Learning Intern, UN ESCWA.** (remote; Lebanon, New York)  
Satellite imagery analysis for urban development.

## Projects

- AWS **S3-triggered AWS Lambda-based PDF processor.**  
Voice assistant based on Whisper and ChatGPT deployed on AWS.  
Fine-tuning pre-trained language models for semantic analysis of tweets.
- Machine Learning **Image captioning, implementing Google's paper: Show and tell.**  
Video captioning, extending on image captioning.  
Federated Learning with knowledge distillation & Differential privacy.  
Lane instance segmentation.

## Projects (continued)

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- Data Science  Website layout A/B testing.  
Investigating Simpson's paradox.  
Credit card default prediction.
- Satellite Imagery  Urban areas segmentation of 4-band multispectral images.  
Urban development detection and analysis.  
Landcover & crop classification using USDA CropScape.

## Research Publications

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### Journal Articles

- 1 **G. Gad** and Z. Fadlullah, "Federated learning via augmented knowledge distillation for heterogenous deep human activity recognition systems," *Sensors*, vol. 23, no. 1, p. 6, 2023.
- 2 **G. Gad**, E. Gad, K. Cengiz, Z. Fadlullah, and B. Mokhtar, "Deep learning-based context-aware video content analysis on iot devices," *Electronics*, vol. 11, no. 11, p. 1785, 2022.

### Conference Proceedings

- 1 **G. Gad**, G. Eyad, and B. Mokhtar, "Towards optimized iot-based context-aware video content analysis framework," in *IEEE 7th World Forum on Internet of Things*, 2021.
- 2 **G. Gad**, A. Annaby, M. Saeed, and N. Negied, "Real-time lane instance segmentation using segnet and image processing," in *IEEE Novel Intelligent and Leading Emerging Sciences*, 2020.



### Talks and Presentations

- 1 **G. Gad** and Z. M. Fadlullah, *Applying computer vision and deep learning to semen morphology and motility analysis*, Oct. 2021.






## Miscellaneous Experience

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### Extracurricular Activities

- 2018-2020  Writer in Nu-Insider newspaper (university newspaper)
- 2018  104<sup>th</sup> place at ECPC of ACM competitive programming competition.

### Awards

- 2023  Student Travel Grant to attend GLOBECOM23 (1,000 USD). Awarded by IEEE.
- 2021  Vector Institute AI scholarship recipient (17,500 CAD). Awarded by Vector Institute.
- 2020  Best Poster Award, NRSC 2020 conference (800 EGP).
-  3rd place in IT & CS track, Egyptian junior researcher competition (2000 EGP).
-  TICO Innovation Award (500 USD).

### Certification

- 2021  AWS certified ML specialist. Awarded by AWS.
-  Software Testing MicroMaster. Awarded by University of Maryland University College.
-  Advanced data analysis nanodegree. Awarded by Udacity.
- 2020  TensorFlow developer professional Cert. Awarded by Google.